US005415619A

United States Patent [19]

Lee et al.

[11] Patent Number: 5,415,619

[45] Date of Patent: May 16, 1995

[54] **METHOD OF MANUFACTURING A VASCULAR GRAFT IMPREGNATED WITH POLYSACCHARIDE DERIVATIVES**

[75] Inventors: **Hai B. Lee; Bung C. Shin; Gilson Khang; Jin H. Lee,** all of Taejeon, Rep. of Korea

[73] Assignee: **Korea Research Institute of Chemical Tech.,** Taejeon, Rep. of Korea

[21] Appl. No.: **147,923**

[22] Filed: **Nov. 5, 1993**

Related U.S. Application Data

[63] Continuation of Ser. No. 626,893, Dec. 13, 1990, abandoned.

[30] **Foreign Application Priority Data**

Dec. 13, 1989 [KR] Rep. of Korea 89-18490

[51] **Int. Cl.**[6] **A61F 2/04;** A61F 2/06

[52] **U.S. Cl.** **600/36;** 623/1

[58] **Field of Search** 623/1, 901, 11; 600/36; 427/2

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,411,754	10/1983	Kaetsu et al.	204/159.15
4,647,505	3/1987	Blackie et al.	428/396
4,806,595	2/1989	Noishiki et al.	525/54.2
4,836,884	6/1989	McAuslan	156/629
4,882,148	11/1989	Pinchuk	424/423
4,883,605	11/1989	Putzig	252/8.551
4,961,954	10/1990	Goldberg et al.	427/2
4,979,959	12/1990	Guire	523/66
5,112,873	5/1992	Pike	521/32

FOREIGN PATENT DOCUMENTS

0206025	12/1986	European Pat. Off. .	
3097158	4/1988	Japan .	
3115554	5/1988	Japan	623/1

OTHER PUBLICATIONS

Guidoin, R. et al., *Albumin Coating of a Knitted Polyester Arterial Prosthesis An Alternative to Preclotting, The annals of Thoracic Surgery,* vol. 37, No. 6, (Jun., 1984).

Urry, D. W. et al., *Irradiation crosslinking of the polytetrapeptide of elastin and compounding to dacron to produce a potential prosthetic material with elasticity and strength,* Journal of Biomedical Materials Research, vol. 16, pp. 11–16, (1982).

Primary Examiner—David Isabella
Assistant Examiner—Debra Brittingham
Attorney, Agent, or Firm—Michael L. Dunn

[57] **ABSTRACT**

A vascular graft fabricated of a polyester fiber, the surface of which is impregnated with biodegradable blood-compatible materials, characterized in that the surface of the said vascular graft comprises carboxylate groups and is impregnated with polysaccharides or their derivatives. The vascular graft is manufactured by treating the hydrophobic surface of a vascular graft fabricated of a polyester fiber to render it more hydrophilic and then impregnating the vascular graft with above polysaccharides or their derivatives by chelate bond with metal ions or physical adsorption in order to increase the adhesion properties and adding glycerin to the impregnated polysaccharides or their derivatives in order to increase the softness so that the impregnated substances may turn into the state of gel by blood at the time of use.

9 Claims, No Drawings